CLAIMS

What is claimed is:

1.   A method for predicting a destination gear in a controller-assisted, manually shifted vehicular transmission system, said method comprising the steps of:

determining an expected front box gear; and

determining whether an intended shift is a compound shift, and if so, a
5   destination gear is predicted based on a shift lever lateral position, a shift lever fore-aft position, and a splitter switch position.

2.   The method of Claim 1, whereby the destination gear is equal to the expected front box gear when the splitter switch position is in a Low position, the shift lever fore-aft position is in one of a partial aft position and a full aft position, and the shift lever lateral position is in one of a High position and a Center position.

3.   The method of Claim 1, whereby the destination gear is equal to the expected front box gear when the splitter switch position is in a Low position, the shift lever fore-aft position is in one of a partial fore position and a full fore position, and the shift lever lateral position is in 1st/Reverse position.

4.   The method of Claim 1, whereby the destination gear is equal to the expected front box gear when the splitter switch position is in a Low position, the shift lever fore-aft position is not in one of a partial fore position and a full fore position, and the shift lever lateral position is in 1st/Reverse position.

5.   The method of Claim 1, whereby the destination gear is equal to the expected front box gear plus one when the splitter switch position is in a High position, the shift lever fore-aft position is in one of a partial aft position and a full aft position, and the shift lever lateral position is in one of a High position and a Center
5   position.

6.   The method of Claim 1, whereby the destination gear is equal to the expected front box gear plus one when the splitter switch position is in a High position, the shift lever fore-aft position is in one of a partial fore position and a full fore position, and the shift lever lateral position is in a 1st/Reverse position.

7.   The method of Claim 1, whereby the destination gear is equal to the expected front box gear minus one when the splitter switch position is in a High position and the shift lever fore-aft position is not in one of a partial fore position and a full fore position, and the shift lever lateral position is in a 1st/Reverse position.

8.   The method of Claim 1, whereby the intended shift is determined to be a compound shift based on the shift lever fore-aft position and the splitter switch position.

9.   The method of Claim 1, whereby the controller uses the predicted destination gear for engine control.

10.   The method of Claim 9, further comprising the step of determining whether the predicted destination gear is greater than a last known gear.

11.   The method of Claim 10, further comprising the step of determining whether a current gear is equal to zero when the predicted destination gear is greater than the last known gear, and if so, commanding the engine to a zero torque mode, and if not, commanding the engine to a recovery mode.

12.   The method of Claim 10, further comprising the step of determining whether a downshift is allowed when the predicted destination gear is not greater than the last known gear.

13.   The method of Claim 12, further comprising the step of commanding the engine to a synchronize mode when the downshift is allowed.

14.   The method of Claim 13, further comprising the step of determining whether a current gear is equal to zero, and if not, commanding the engine to a recovery mode.

15.   The method of Claim 14, whereby the engine is commanded to a follower mode when the recovery mode is complete.

16.   The method of Claim 1, whereby the controller uses the predicted destination gear for splitter control.

17.   A controller-assisted, manually shifted vehicular transmission system comprising an internal combustion engine driving an input shaft of a compound transmission having a multiple-ratio main section shifted by a shift lever manually movable in a shift pattern and a splitter auxiliary section connected in series with said

5   main section, a splitter shift mechanism for automatically implementing splitter shifts and a controller for receiving input signals indicative of system operating conditions and for processing same according to predetermined logic rules to issue command output signals to system actuators, including said splitter shift mechanism,

    wherein said controller includes logic rules for:

10   determining an expected front box gear; and

                determining whether an intended shift is a compound shift, and if so, a destination gear is predicted based on a shift lever lateral position, a shift lever fore-aft position, and a splitter switch position.

18.   The transmission of Claim 17, wherein the controller determines the intended shift to be a compound shift based on the shift lever fore-aft position and the splitter switch position.

19.   The transmission of Claim 17, wherein the controller uses the predicted destination gear for engine control.

20.　　The transmission of Claim 17, wherein the controller uses the predicted destination gear for splitter control.